

## ATMOSPHERIC ELECTRICITY.

## AURORAS.

Auroras were observed during the month as follows: 2d, Poplar River, Mont. 5th, Poplar River, Mont. 8th, Eastport and Orono, Me. 10th, Fort Buford, Dak.; Saint Vincent, Minn.; Poplar River, Mont. 12th, Fort Buford, Dak.; Eastport, Me.; Poplar River, Mont. 13th, Fort Totten and Webster, Dak.; Moorhead and Saint Vincent, Minn.; Poplar River, Mont.; Fort Laramie, Wyo. 17th, Webster, Dak. 20th, Richardton, Dak. 21st, Duluth and Moorhead, Minn. 22d, Cornish, Me.; Alpena, Mich.; Moorhead and Saint Vincent, Minn.; Ardenia, N. Y.; Garrettsville, Ohio; Spokane Falls, Wash. 24th, Cornish, Me.

Of the above displays, the most brilliant were those observed during the night of the 21st-22d at Duluth and Moorhead, Minn., where the aurora appeared in the form of a bright arch, with shooting beams, reaching nearly to the zenith.

## THUNDER-STORMS.

Thunder-storms are reported in the various states as follows:

1st, Lead Hill, Ark.; New London, Conn.; Cairo, Ill.; Dudley, Mass.; Nashua, N. H.; Setauket, N. Y.; Hatteras, N. C.; Jacksonborough, Ohio; Yaquina Light House, Oregon; Milan, Tenn. 2d, Lead Hill, Ark.; New Haven and New London, Conn.; Webster, Dak.; Archer, Fla.; Cairo, Charleston, Chicago, and Springfield, Ill.; Indianapolis, Logansport, and Terre Haute, Ind.; Cedar Rapids, Clinton, Cresco, Davenport, Independence, and Monticello, Iowa; Frankfort, Ky.; Portland, Me.; Amherst, Blue Hill Observatory, Deerfield, New Bedford, Somerset, Taunton, and Westborough, Mass.; Kalamazoo, Lansing, and Mottville, Mich.; Saint Paul, Minn.; Lamar, Mo.; Setauket, N. Y.; Wellsborough, Pa.; Embarras, Fond du Lac, and Manitowoc, Wis. 3d, Archer and Key West, Fla.; New Bedford, Mass.; Berlin Mills and Manchester, N. H.; Atlantic City, N. J.; Humphrey, Oswego, Palmyra, and Rochester, N. Y.; Cincinnati and Yellow Springs, Ohio; Parkersburg, W. Va. 4th, Voluntown, Conn.; Portland, Me.; Blue Hill Observatory, Dudley, Fall River, Somerset, Taunton, and Westborough,

Mass.; Berlin Mills and Nashua, N. H.; Buffalo and Le Roy, N. Y.; Cleveland, Ohio; Manchester and Strafford, Vt. 5th, Sandwich, Ill.; Albia, Cedar Rapids, Clinton, Independence, Monticello, and Mount Vernon, Iowa; Grand Haven, Mich.; DeSoto and Omaha, Nebr.; Beloit, Delavan, Embarras, Fond du Lac, Green Bay, La Crosse, Madison, Manitowoc, and Milwaukee, Wis. 6th, Charleston and Chicago, Ill.; Davenport, Cresco, Independence, and Keokuk, Iowa; Grand Haven, Lansing, Mottville, and Traverse City, Mich.; Fayette Mo.; Napoleon, Waukeon, and Yellow Springs, Ohio; Yaquina Light House, Oregon; Delavan, Green Bay, La Crosse, Manitowoc, and Milwaukee, Wis. 7th, Las Animas, Colo.; Independence, Iowa; Grand Haven, Mottville, and Thornville, Mich.; Duluth, Moorhead, and Saint Paul, Minn.; Westtown, Pa.; Corpus Christi, Tex.; Port Angeles, Wash.; La Crosse, Madison, and Milwaukee, Wis. 8th, Tucson and Yuma, Ariz.; Salina and Wakefield, Kans.; Corpus Christi, Palestine, and San Antonio, Tex.; Fond du Lac, Wis. 9th, Lewis Creek, Cal.; Wakefield, Kans.; San Antonio, Tex. 10th, Tucson and Willcox, Ariz.; Galveston and New Ulm, Tex. 11th, Los Angeles and Riverside, Cal.; Cedar Keys and Limona, Fla.; Humphrey, N. Y. 12th, Cedar Keys and Limona, Fla. 13th, Willcox, Ariz.; Fort Lewis, Colo.; Cedar Keys, Fla.; Charleston, Ill.; Frisco, Utah. 14th, Key West, Fla.; Fort Union, N. Mex. 15th, Denver, Grand Junction, and Los Animas, Colo.; Fort Sully and Parkston, Dak.; Moorhead, Minn. 16th, Key West, Fla.; West Leavenworth, Kans.; Hiram, Ohio; Madison, Wis. 17th, Buffalo and Humphrey, N. Y.; Elyria and Garrettsville, Ohio. 18th, Tucson, Ariz. 19th, Fort Thomas, Ariz.; Merritt's Island, Fla. 20th, Buffalo and Fort Niagara, N. Y.; Corry, Meadville, and Pittsburg, Pa. 21st, Ardenia, Boyd's Corners, and Humphrey, N. Y. 22d, Salina, Kans.; Hudson, Mich. 23d, Clinton, Iowa; Globe, Lebo, and West Leavenworth, Kans.; Hudson, Mich. 24th, Corpus Christi, Palestine, and Rio Grande City, Tex. 25th, Fort Thomas, Ariz. 26th, Cedar Keys and Archer, Fla. 28th, Archer, Cedar Keys, and Duke, Fla. 29th, University of Virginia, Va. 31st, Chicomicomico, Hatteras, and Wash Woods, N. C.

## MISCELLANEOUS PHENOMENA.

## FOREST AND PRAIRIE FIRES.

Fort Bidwell, Cal.: fires were burning in the swamps three or four miles southwest of this place on the 4th.

Moorhead, Minn.: fires were burning in the prairies south of station during the afternoon and night of the 14th.

Saint Vincent, Minn.: fires were burning on the prairies near this place on the 15th. The air was full of smoke on the 18th.

Little Rock, Ark., 19th: forest fires were raging four miles northeast of this city. On the 21st the fires were still burning and were causing considerable damage.

San Diego, Cal.: brush fires prevailed north and northeast of this place on the 21st. Light smoke from fires burning in the mountains north and east of here overspreads this region.

Los Angeles, Cal., 22d: extensive fires have prevailed for several days past in the Santa Monica Mountain Range, destroying a considerable amount of timber; extensive fires are also reported in the San Bernardino Mountains. The 23d an extensive brush fire was burning on the hills east of this city.

Forest and prairie fires are also reported to have occurred as follows: Moorhead, Minn., 12th, 18th, 23d, 28th to 30th; Bismarck, Dak., 18th; Parkston, Dak., 20th; North Platte, Nebr., 19th, 28th; Little Rock, Ark., 22d, 23d.

## METEORS.

Indianapolis, Ind.: an unusually bright meteor was observed at 9 p. m. on the 3d; it shot along a central arc of the sky, starting about 40° above the eastern horizon, moved a little

north of west, and disappeared when about half way between Ursa Minor and the zenith.

Moorestown, Burlington Co., N. J.: a meteor apparently three or four times the size of Venus was observed in the west-southwest at 6.30 p. m. on the 5th; when in altitude 40° it separated into two parts and disappeared when in altitude 35°.

Los Angeles, Cal.: a brilliant meteor is reported to have been observed about 7.10 p. m. on the 8th in the western sky; as it passed through the air it grew in size until it appeared to be about as large as the moon, when it suddenly burst in many pieces; its light when first seen was white and similar to that of an electric light, and when it burst the sky was illuminated as by an electric flash.

Dale Enterprise, Rockingham Co., Va.: a meteor, which illuminated the whole country, was observed at 9.40 p. m. on the 8th; it moved in a southeasterly direction, and after having passed a distance of twenty-four degrees it exploded.

Stateburg, Sumter Co., S. C.: a meteor was observed in the east at about 9.05 p. m. on the 12th; it moved from near the meridian eastward and downward, and disappeared about 10° south of Pleiades. In less than a minute another meteor, not so bright, appeared 8° or 10° north of the first, and pursued a parallel course; almost simultaneously with this latter meteor, and from nearly the same point in the heavens, a very small meteor shot off towards the North Star.

Mr. A. K. Holt, voluntary observer at Riverside, San Bernardino, Co., Cal., reports: